SAFETY IN BUILDING CONSTRUCTION

1.0 INTRODUCTION

Safety is the state of being safe and protected from danger or harm, while Building is a structure such as a house or school that has a roof and walls – Oxford Advanced Learner’s Dictionary, (2001).

The spate of building collapses across the country has become a matter of great concern to both government and the citizens. The major cause being always traceable to unsafe actions of the parties involved (Clients, Building Consultants/Contractors and Users).

An assessment of building failures in Nigeria: Lagos and Ibadan case study, by Ayininuola G. M. and Olalusi O. O. (2004), revealed that all parties in the building industry: Clients, Architects, Design Engineers, Local Authority (Town planners) and Contractors contributed immensely to building failures in various dimensions. S. T. Tyagher et al (2007) presented sampled records of collapsed buildings in Nigeria covering 10 states which showed that between 1976 and 1994, 219 persons lost their lives with several others injured. They traced the causes to defects or deficiencies at the design, construction and post construction stages. In 1995 the Sampoong Department Store in Seoul, South Korea collapsed due to structure failure, killing 501 and injuring another 937 people. Upon investigation, it was revealed that this structure failure was due to negligence and unsafe design changes. These underscore the need for all to understand building safety precautions in all ramifications. This paper examines safety before, during and after building construction.

2.0 SAFETY PRECAUTIONS BEFORE BUILDING CONSTRUCTION

Most prospective building owners do not know the right professionals to meet, hence start the building construction process erroneously. This situation is further worsened by the poor state of the economy which forces greedy professionals to take advantage of innocent prospective building owners, leaving professional ethics by the corner. This paper advocates taking safety precautions from conception stage by using the right professionals. Such first right step would naturally flow to the end, leaving a safe and sound building for the client and other users.

Perhaps, the following clarifications on professionals in the building industry will be useful to all prospective building owners.

2.1 Architect - prepares building plans based on briefs from the client;
2.2 Structural Engineer – prepares design for the structural (load carrying) elements based on the architect’s design;
2.3 Service Engineers - are basically electrical and mechanical engineers. They prepare designs for electrical and mechanical installations in line with the architect’s design;

2.4 Quantity Surveyor – prepares cost estimates for the proposed building based on the designs from the architect and the engineers;

2.5 Land Surveyor – prepares perimeter survey and topographical survey of the building site;

2.6 Town planning authority – provides development permit for the proposed building; and

2.7 Builder – specializes in building construction.

All the above professionals play key roles to actualize their design during building construction. Using the wrong professional at any stage of the building process is unsafe and should be discouraged by all the parties concerned. Building design/construction is therefore a team work for which one professional cannot claim complete knowledge. Remember the saying that Together Everyone Achieves More (TEAM).

3.0 SAFETY PRECAUTIONS DURING BUILDING CONSTRUCTION

Kirk Bernard listed electrical accidents, falls, struck-by accidents and trenching/excavation accidents as the four most common types of construction accidents that cause serious injury and death.

It is the duty of builders to make every effort to provide a safe working environment for workers on building sites. Common types of construction site accidents are as follows: construction site falls, crane accidents, scaffolding accidents, workers being run-over by operating equipment, electrical accidents, trench collapses, fires and explosions, welding accidents and structure failures. Each of these mishaps can be tragic and deadly, and each of these accidents can be completely avoided through effective safety measures.

The following precautions should be enforced at building construction sites:
- Use of hard hats
- Erection of scaffolds and safeguards
- Protruding nails to be removed, hammered in or bent in a safe condition
- Electricity lines and other hazards should be encased or guarded
- Check relevant authority for underground utilities
- Fire protection plan
- Staff training
- First aid
- Lighting
- Sanitation
- Protection of trenches
- Use of good construction materials
- Proper site supervision
4.0 SAFETY PRECAUTIONS AFTER BUILDING CONSTRUCTION

Safety precautions must be continued after building construction. The following are unsafe acts after construction:
- Increasing building floors beyond design provision, eg. 2 storeys building to 4 storeys;
- Changing floor plans after construction eg. Creating more rooms on suspended floors through partitioning with heavy walls;
- Changing building uses eg. Residential building to school building
- Creating vibrations through breaking, pounding, etc on suspended floors
- Absence of fire fighting equipment
- Illegal electricity connections
- Lack of erosion control
- Flooding, etc

5.0. CONCLUSION AND RECOMMENDATIONS

The safeties of both buildings and persons have been discussed. But from whatever perspective, whenever a building collapses due to unsafe acts, several lives are either injured or lost.

The Clients have contributed to most building failures in Nigeria through the use of wrong professionals. Most Architects are used to deliver works of structural, electrical and mechanical engineers respectively. These categories of clients are either ignorant or unwilling to pay professional charges. The professionals on the other hand do not exhibit professional ethics when they play along with these clients. Patronizing only registered professionals can solve this problem.

Urban development agencies at the various levels of governments should enforce control of building works as enshrined in section 13 of the National Building Code 2006. The professional bodies should also wake-up to their responsibilities by sanctioning erring members.

Great Concerned Friends Association and similar NGO’s can be in the vanguard for sensitization of the public on safe practices in the building processes.

The building industry can actually be made safe if all of us can stand up convinced like president Barrack Obama of the USA to say YES WE CAN – use the right professionals to do our building works!

Thank you for your kind attention.
REFERENCES


5. www.resource4constructionsiteaccidents.com, Types of construction site accidents.